

Dust and Air Quality impacts associated with the proposed development have been assessed with reference to the latest local and national planning guidance for mineral sites including any relevant technical guidance such as that from the Institute of Air Quality Management (IAQM). This IAQM document has been prepared to assist practitioners undertake dust assessments for mineral sites. It aims to provide advice on robust and consistent good-practice approaches that can be used to assess the operational phase dust impacts.

Particulate Matter

The size of airborne particles governs their behaviour. National legislation encompasses both PM₁₀ (particles under 10 micrometres) and PM_{2.5}, (particles under 2.5 micrometres or fine particulate matter).

PM particles can travel large distances in the atmosphere. A small proportion of the concentrations of PM that people in the UK are exposed to come from naturally occurring sources such as pollen and sea spray (approximately 15 per cent). Another third is transported to the UK from other European countries. However, around half of UK concentrations of PM comes from anthropogenic sources in the UK such as domestic wood burning and tyre and brake wear from vehicles. As such, it is in the interest of the UK to measure concentrations of PM as close to these sources of anthropogenic emissions as possible to effectively assess exposure to PM that can be tackled via UK policies.

The limits and targets for particulate matter (as PM₁₀ and PM_{2.5}) are summarised in Table 1 below.

Table 1. National Air Quality Objectives

Pollutant	Concentration measured as:	Objective	Date to be achieved by (and maintained after)
PM₁₀	24-hour mean	50 µg/m ³ not to be exceeded more than 35 times a year	31 December 2004
	Annual mean	40 µg/m ³	
PM_{2.5}	Annual mean	Target of 35% reduction in concentrations compared to 2018 baseline	Legally Binding Target: 1 January 2040
		10 µg/m ³	Legally Binding Target: 1 January 2040
		Target of 22% reduction in concentrations compared to 2018 baseline	Interim target: 1 January 2028
		12 µg/m ³	Interim target: 1 January 2028

Air Quality Strategy, Framework for local authority delivery, DEFRA

As an indication of the likely level of PM₁₀ and PM_{2.5} particulates at the site, data has been accessed for the relevant 1km squares of the Automatic Urban and Rural Network (AURN), by way of using the Local Air Quality Management Background Mapping Data Tool available on the DEFRA website under the UK Air Information Resources. This resource currently uses projections for future years based on the 2018 AURN dataset.

Table 2. Annual Average Background Concentrations

Location	Year	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³
Grid Square 439500, 426500 Containing: Foxholes Place, 88 Lower Mickletown and 81 Pinfold Lane	2024	13.06	7.50
	2027	12.92	7.39
	2030	12.88	7.36
Grid Square 440500, 426500 Containing: 154 Lower Mickletown, 273 Lower Mickletown, Willow Grove Farm and SSSI Mickletown Ings	2024	13.58	7.57
	2027	13.43	7.46
	2030	13.39	7.42
Grid Square 441500, 426500 Containing: Providence Place and LNR Letchmire	2024	13.46	7.42
	2027	13.29	7.31
	2030	13.24	7.27
Grid Square 440500, 425500 Containing: Dunford House	2024	12.11	7.30
	2027	11.96	7.18
	2030	11.91	7.15

The IAQM, Guidance on the Assessment of Mineral Dust Impacts for Planning states: *“If the long-term background PM₁₀ concentration is less than 17 µg/m³ there is little risk that Process Contribution would lead to an exceedance of the annual-mean objective”*. Furthermore, the guidance highlights suspended dust from quarries is typically in the region of PM_{2.5-10} *“PM₁₀ fraction is relevant to health outcomes. For quarries most of this suspended dust will be in the coarse sub-fraction (PM_{2.5-10}), rather than in the fine (PM_{2.5}) fraction.”* In addition, the quarried material has high moisture content with water utilised through sand and gravel processing (a wet operation). Therefore, minimising the potential for dust.

Noting that the PM₁₀ values are all under the screening value, and the PM_{2.5} values are significantly under both the 2028 interim target and the legally binding 2040 target. Additional loading of these values due to a new quarry development would not lead to any exceedances in particulate matter concentrations in the area.

Nuisance and Disamenity Mineral Dust Assessment and Sand & Gravel Quarrying

The generation and dispersal of dust is highly dependent upon weather conditions. A large dataset of meteorological data local to the site has been accessed and analysed to give an indication of how often the site could be susceptible to fugitive dust events. As part of this assessment the proposed working scheme has been studied and potential dust sources have been identified. The likely effects of dust emissions have been assessed and where necessary best practice dust control measures recommended in order to minimise such disturbances at nearby sensitive locations.

The IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning states *“Adverse dust impacts from sand and gravel sites are uncommon beyond 250m ... measured from the nearest dust generating activities.”* This feeds into the assessment of mineral dust impacts by way of categorising sensitive receptors as close (<100m), intermediate (between 100m and 200m) and distant (between 200m and 400m).

Sensitive receptor distances are measured from the closest possible quarry workings to the receptor building. This gives a worst-case scenario for which the quarry operator can base all mitigation measures on. However, most workings will be in excess of 250m from the receptors, the closest approach workings only take place for a small amount of time over the entirety of the quarry development. Eight of the ten sensitive receptors assessed are within 250m of the application boundary at the closest approach. A negligible effect from mineral dust is predicted at all assessment locations.

The raw material in Sand and Gravel quarrying is predominantly damp when extracting and is considered to have a high moisture content, which is deemed a low dust magnitude material. The mineral processing of such material is a wet process using a wash plant and various water sprays which helps suppress dust when screening and grading such materials. Processed materials will be stockpiled in the stocking area; shielded from windblow with a peripheral 4m high screening mound.

Addressing concerns: School, Doctors Surgery, Care Home, Sports Field, Natural Habitats

Pinfold Surgery, Methley Primary School and Oaklands Care Home are all deemed high sensitivity receptors. The mineral dust assessment has considered the nearby residential receptor (high sensitivity) of Foxholes Place, which is representative of high sensitivity receptors in this area.

Sports fields as recommended by the IAQM are deemed a low sensitivity, and, in this instance, the nearby playing field would be represented by the assessed receptor of 81 Pinfold Lane.

Ecological receptors have been considered in this mineral dust assessment. With SSSI Mickletown Ings and Local Nature Reserve Letchmire both being assessed.

We therefore consider that the worst-case scenarios have been assessed.

Mitigation Measures

The quarry operator will comply with any conditions which may be specified in the planning conditions imposed by the Mineral Planning Authority relating to dust. The operator will refer to the planning conditions and determine an appropriate response, considering current and forecast weather conditions.

All site personnel will be trained as to the potential sources and effective mitigation of dust.

Regular visual inspections will be conducted within the site and on the local road network by the site personnel, as deemed necessary and especially during dry windy conditions to ensure that any dust sources are identified and dealt with promptly.

All mineral sites will encompass a degree of dust mitigation as part of normal working practice. Mitigation measures can be divided into two categories, general good practice mitigation measures (see Table 3, overleaf), and site-specific mitigation measures.

There will be daily inspections from site management in order to assess and address the potential for any off-site dust emissions. In the event of site working within 200m of property and an occurrence of dry and windy conditions (blowing towards property), when necessary, in such circumstances operations may need to be relocated to a position a suitable distance away, or in a suitable direction to avoid any potential wind blow towards a sensitive receptor. Failing this, operations will be stopped until weather conditions are suitable.

A dust management plan will be prepared and implemented on site.

As part of the site's dust management plan, there will be a complaints procedure whereby the site can detail the complaint and take action to investigate and remedy the situation. Contact details for the site will be available on the operator's website or on a notice board at the site entrance.

Table 3: Good Practice Mitigation Measures

Site Operation	Dust Control Measures
<p>Materials Handling</p> <p>On-site Transportation</p> <p>Mineral Processing/Materials Blending</p> <p>Stockpiles/Exposed Surfaces</p> <p>Off-site Transportation</p>	<ul style="list-style-type: none"> • Controlled use of fixed short haul routes • Water to be used as required via static dust suppression systems and site water bowser if required • Speed controls to be implemented on all haul routes 10 mph • Road sweeper to be utilised on local road network • Drop heights to be minimised • Mobile plant exhausts and cooling fans to point away from ground • All loaded HGVs exiting the site to be sheeted • Staff Training